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**MICHIGAN WATERFOWL HUNTER ACTIVITY AND OPINIONS ON REGULATIONS,
MANAGEMENT, AND SATISFACTION FOLLOWING THE 2002-03 HUNTING SEASON**

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Abstract: Nearly 6,000 Michigan waterfowl hunting license buyers were contacted by mail after the 2002-03 waterfowl hunting season to determine hunter activity and opinions about waterfowl management in Michigan; 81% responded to the survey. An estimated 57,700 people hunted ducks or geese (*Anatidae*). Goose hunting activity was greatest in September, followed by October, in all three of Michigan's waterfowl hunting zones. Most goose hunters (76%) indicated having an opportunity to hunt ducks and geese at the same time was important, and most goose hunters (53%) were willing to shorten the goose season (e.g., 30 to 20 days) and to start the season later in order to achieve more overlap between duck and goose seasons. When asked about potential new measures to control growth of Michigan's resident goose population, at least 50% of goose hunters approved of hunting with unplugged guns, extending the hunting season to include late August, and hunting geese until 30 minutes after sunset. Similar to goose hunters, most duck hunters were active early in the season, especially the month of October. Most duck hunters (61%) did not use motorized spinning-wing decoys while hunting ducks in 2002-03, but most duck hunters (56%) approved of their use. Special regulations (i.e., season splits and zones) designed to increase duck hunter satisfaction had little effect or may have reduced hunter satisfaction. The most popular choice for the opening date of a 60-day duck hunting season was about 1 October in all hunting zones. Most duck hunters (52%) supported combining the daily limit for snipe (*Gallinago gallinago*), coot (*Fulica Americana*), moorhen (*Gallinula chloropus*), and rails (*Rallidae*). However, 49% of duck hunters did not approve of including mergansers as part of the daily duck limit.

The Michigan Department of Natural Resources (DNR) and U.S. Fish and Wildlife Service (USFWS) share responsibility for the management of migratory game birds in Michigan. The USFWS annually establishes maximum season length, the earliest and latest dates that waterfowl hunting can occur (framework dates), and the



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maximum daily harvest limits for each species of migratory bird. The DNR can only select hunting seasons and daily harvest limits within the guidelines established by the USFWS; thus, State regulations may be more restrictive but not more liberal than Federal regulations.

Waterfowl population status and hunter attitudes are used when developing waterfowl hunting regulations. The opinions of Michigan waterfowl hunters are obtained through three primary means: contacts with local biologists, DNR meetings with a Citizen's Waterfowl Advisory Committee (CWAC), and hunter questionnaire surveys. DNR professionals frequently discuss regulations with hunters at local public meetings and during informal contacts, including phone calls and letters. However, opinions obtained through these processes may not reflect those held by most waterfowl hunters because these opinions often come from dissatisfied hunters or focus on local issues. The DNR began in 1999 to periodically conduct a more rigorous survey of waterfowl hunter attitudes using a mail questionnaire. This type of survey technique is considered a scientifically-sound method of collecting the opinions of waterfowl hunters, and it is a useful tool to supplement hunter opinions obtained locally and through the CWAC.

Complexity of waterfowl hunting regulations has generally increased over time, with more intricate rules often established for the purpose of improving hunter satisfaction. One of the most significant changes in Michigan occurred in 1977, when the state was divided into three geographic hunting zones (Martz 1980). This allowed hunting seasons to begin earlier in the northern part of the state to help assure season dates would coincide with predicted peaks in duck migration. One "season split" (closed period within season allowing later closing date) was also approved in each zone, again to help assure open season dates coincided with predicted peaks in duck migration. Following Michigan, several other states have used zones and splits in their waterfowl regulations. However, wildlife professionals have rarely measured hunter opinions on regulation alternatives or how specific regulations have influenced satisfaction (Ringelman 1997). In this study we used a questionnaire survey to (1) quantify hunter activity during the 2002-03 Michigan waterfowl season, (2) determine waterfowl hunters' opinions on various waterfowl regulations and management issues, and (3) measure hunter satisfaction for regulations designed to increase hunter satisfaction.

METHODS

Ducks and geese could be harvested during several periods (seasons) within the overall 2002-03 Michigan waterfowl season (Table 1). In order to hunt migratory birds in Michigan, most hunters purchased a small game hunting license, a state waterfowl hunting license, a federal migratory bird hunting and conservation stamp, and they registered with the USFWS Harvest Information Program (HIP). Landowners and their families could hunt migratory birds on their property without a hunting license, although they still had to purchase a federal migratory bird stamp and register with HIP.

A four-page, self-administered hunter questionnaire (Appendix A) was developed cooperatively by the DNR-Wildlife Division, Michigan State University, the CWAC, and

Michigan Duck Hunters Association (MDHA) (Soulliere et al. in review). This questionnaire was sent in mid-April 2003 to 5,990 randomly selected people that had purchased a waterfowl hunting license in 2002. Up to three follow-up mailings of the questionnaire were sent to individuals who did not respond to the previously mailed survey request. In addition, this same data was partitioned into various stakeholder groups, and their opinions compared to the general waterfowl-hunting public (Soulliere et al. in review).

Estimates were derived from survey data provided by hunters using a simple random sampling design (Cochran 1977) and were presented along with 95% confidence limits. In theory, this confidence limit can be added to and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval is a measure of the precision associated with the estimate and implies that the true value would be within this interval at least 95 times out of 100. Unfortunately, there are other possible sources of error in surveys that may be more serious than theoretical calculations of sampling error. They include failure of participants to provide answers (non-response bias), question wording, and question order. It is very difficult to measure these biases, however, survey response rate was very high and using a team approach to design the survey was believed to minimize question-related bias.

Although 5,990 people were initially sent the questionnaire, 122 questionnaires were undeliverable (e.g., address change), resulting in an adjusted sample size of 5,868. Questionnaires were returned by 4,725 people, yielding an 81% adjusted response rate. Some individuals did not answer all questions on the survey. When a respondent did not provide an answer, they were omitted from the analysis for that question.

RESULTS

In 2002, 64,582 people purchased a waterfowl hunting license in Michigan. About $89 \pm 1\%$ of these people actually spent time in the field hunting ducks or geese during the 2002-03 season (Table 2); $82 \pm 1\%$ hunted ducks and $69 \pm 1\%$ hunted geese. Most ($97 \pm 1\%$) of the active hunters were men. The mean age of active waterfowl hunters was 42 ± 1 years on 31 October 2002.

Most people that purchased a waterfowl hunting license ($66 \pm 1\%$) indicated that hunting waterfowl was either one of their most important recreational activities or the most important activity (Figure 1). Most licensees ($55 \pm 1\%$) had been a member of a waterfowl-related organization during the previous three years. The most popular organization was DU; $39 \pm 1\%$ of licensees reported being a member of DU (Figure 2).

Goose Management and Hunting Issues

In 2002, 44,873 people hunted geese in Michigan (Table 2). Most of these people hunted in the southern Lower Peninsula (30,644), while 15,978 and 7,613

hunted geese in the northern Lower Peninsula and the Upper Peninsula, respectively (Table 3). Most goose hunters ($81 \pm 1\%$) hunted in only one geographical zone, while $16 \pm 1\%$ hunted in two zones, and $2 \pm 1\%$ hunted in all three zones. Of the people hunting geese in multiple zones, most ($88 \pm 2\%$) were southern Michigan residents that traveled to northern zones. Regardless of the region of residence, September and October were the most popular months for goose hunting (Figure 3). Goose hunters who resided in the southern Lower Peninsula were relatively more active during November-February, as the goose season was closed in the remainder of the state (Table 1).

In some residential and urban areas, where hunting has not been an option to help control human-geese conflict, goose nests have been destroyed under government-issued permits. Many of the unsuccessful breeding geese, as well as sub-adult non-breeders, fly to the Hudson Bay area in Canada for the summer and then return to Michigan during the goose hunting season (Luukkonen et al. 2004). After being provided a statement about this increased mobility (thus potential availability to hunters) of urban geese, goose hunters were asked whether they agreed with the practice of destroying goose nests. About $44 \pm 2\%$ of the goose hunters approved of destroying goose nests as a population control technique, whereas $36 \pm 2\%$ of goose hunters disapproved of nest destruction. About $20 \pm 1\%$ of goose hunters were not sure about this method for controlling goose numbers, and there was little variation in opinion by geographic region (Figure 4).

Goose hunters indicated having an opportunity to hunt ducks and geese at the same time was important; $42 \pm 2\%$ reported season overlap was extremely important and $35 \pm 2\%$ stated it was very important (Figure 5). About $14 \pm 1\%$ of goose hunters indicated having the opportunity to hunt both ducks and geese at the same time was only somewhat important and $5 \pm 1\%$ said it was not important. Most goose hunters ($53 \pm 2\%$) were willing to shorten the goose season (e.g., from 30 to 20 days) and to start the season later in order to achieve more overlap between duck and goose hunting seasons (Figure 6). In contrast, $34 \pm 2\%$ of goose hunters were not willing to trade greater overlap for a shorter goose season and adjust the start of the season so they would be able to shoot both ducks and geese at the same time.

A relatively high proportion of goose hunters ($43 \pm 2\%$) preferred that the early goose hunting season start after 1 September, while $41 \pm 2\%$ indicated the current 1 September starting date was their preferred date (Figure 7). Only $9 \pm 1\%$ of the goose hunters would like the early goose season to start before 1 September.

If Michigan's resident Canada goose population (i.e., geese that nest in Michigan) grows beyond a social carrying capacity, resulting in excessive human-geese conflicts, wildlife managers may request federal approval of hunting practices which are currently not allowed to reduce goose numbers. When goose hunters were asked whether they approved of using such methods for controlling resident Canada geese in Michigan responses varied. At least 50% of goose hunters approved of hunting with unplugged guns ($53 \pm 2\%$), extending the hunting season to include late August

($51 \pm 2\%$), and hunting geese until 30 minutes after sunset ($75 \pm 1\%$). Only $41 \pm 2\%$ of goose hunters approved of using electronic calls while hunting geese (Figure 8).

Duck Management and Hunting Issues

In 2002, 52,773 people hunted ducks in Michigan (Table 2). About $15 \pm 1\%$ of the adult duck hunters took a youth hunting with them, and $42 \pm 4\%$ of these youths were not related to the adult hunter. A total of 35,209 ($67 \pm 2\%$) duck hunters indicated they pursued ducks in the southern Lower Peninsula (south zone), 22,962 ($44 \pm 4\%$) people hunted in the northern Lower Peninsula (middle zone), and 11,153 ($21 \pm 6\%$) hunted in the Upper Peninsula (north zone) (Table 3). Most duck hunters ($57 \pm 2\%$) preferred to hunt in Michigan's southern hunting zone, while $31 \pm 1\%$ preferred the middle zone, and $12 \pm 1\%$ preferred the north zone. Most ($73 \pm 1\%$) hunted in only one geographical region, while $23 \pm 1\%$ hunted in two zones, and $4 \pm 1\%$ hunted in all three zones. Of the people hunting ducks in multiple zones, most ($87 \pm 2\%$) were southern Michigan residents that traveled to northern zones. Most duck hunters pursued ducks during October ($84 \pm 1\%$) and November ($58 \pm 2\%$) in 2002. Regardless of the region of hunter residence, October was the most popular month for duck hunting (Figure 9).

About $43 \pm 2\%$ of active duck hunters reported that having an opportunity to hunt during opening weekends in multiple hunting zones was not important (Figure 10). A total of $26 \pm 1\%$ of the duck hunters reported that this was extremely important or very important, whereas $25 \pm 1\%$ indicated having multiple zone openers was somewhat important. About $72 \pm 1\%$ of duck hunters actually pursued ducks during an opening weekend in at least one of the three hunting zones. A total of $66 \pm 1\%$ of duck hunters hunted during an opening weekend in one hunting zone, while $6 \pm 1\%$ pursued ducks during the opening weekends in two hunting zones. Few hunters ($<1\%$) participated in the opening weekend duck hunts of all three hunting zones.

The 2002-03 duck season included a non-traditional split in the Upper Peninsula (north zone) which resulted in two days of late November hunting opportunity. About $3 \pm 1\%$ of the duck hunters were active during this 2-day late-November hunting season in the north zone. Nearly $23 \pm 1\%$ of the hunters statewide reported that they were not aware of this late 2-day season. Among duck hunters that reside in the Upper Peninsula, about $38 \pm 6\%$ reported they were not aware of this late season (Figure 11).

When duck hunters were asked about their preferred outdoor setting to hunt ducks, $36 \pm 1\%$ indicated they preferred areas associated with small marshes or beaver ponds. Nearly an equal proportion of hunters ($33 \pm 1\%$) preferred to hunt ducks in areas associated with large lakes or marshes. Few hunters reported they preferred to hunt ducks in areas associated with large rivers ($3 \pm 1\%$). The remaining duck hunters ($28 \pm 1\%$) reported they did not have a preferred setting in which to pursue ducks.

Most duck hunters ($61 \pm 1\%$) did not use motorized spinning-wing decoys while hunting during the 2002-03 Michigan duck season. About $20 \pm 1\%$ of duck hunters occasionally used a motorized spinning-wing decoy, $12 \pm 1\%$ usually used these decoys, and $7 \pm 1\%$ of the duck hunters always hunted with these decoys. Use was higher among residents of the Lower Peninsula than among residents of the Upper Peninsula (Figure 12). Although use was relatively low overall, most Michigan duck hunters ($56 \pm 2\%$) approved of the use of motorized spinning-wing decoys; $20 \pm 1\%$ of duck hunters strongly approved and $36 \pm 1\%$ approved of these decoys (Figure 13). A total of $16 \pm 1\%$ of duck hunters did not approve of hunters using these decoys and $28 \pm 1\%$ had no opinion. Most duck hunters ($55 \pm 2\%$) responded “no” when asked if they would approve of a ban on motorized spinning-wing decoys (Figure 14). In contrast, $25 \pm 1\%$ of duck hunters would approve of banning these decoys, however, $13 \pm 1\%$ would approve of this ban only if it was enacted in all states.

When asked how hunting zones affected their satisfaction, about $20 \pm 1\%$ of duck hunters indicated they had increased satisfaction associated with hunting zones (Figure 15). About $57 \pm 2\%$ of duck hunters indicated no effect on their satisfaction due to zones, and $11 \pm 1\%$ indicated that implementation of hunting zones decreased their hunting satisfaction. Similarly, only $13 \pm 1\%$ of duck hunters had increased satisfaction with implementation of split seasons. About $45 \pm 1\%$ indicated no effect on satisfaction, and $27 \pm 1\%$ of Michigan duck hunters indicated season splits actually decreased their hunting satisfaction (Figure 16).

Hunters were asked for their preferred duck season opening dates using seven-day blocks and using varied season length. Date blocks included the traditional framework start date of the Saturday nearest 1 October (block = 28 September to 4 October), plus week-long blocks before and after this period. Season lengths of 60, 45, and 30 days were used. When asked about future hunting season dates, $47 \pm 5\%$ of duck hunters that preferred to hunt in the Upper Peninsula (north zone) favored a beginning date around 1 October with a 60-day hunting season (Figure 17). Even if the season consisted of 45 or 30 days, a starting date near 1 October was still the most frequently selected date among hunters who preferred to hunt this north zone. Among duck hunters that preferred to hunt in the northern Lower Peninsula (middle zone), $33 \pm 3\%$ selected an opening date around 1 October with a 60-day season (Figure 18). For a 45-day season, these hunters more frequently selected a starting date one week later, about 8 October. If the season was only 30 days long, middle zone duck hunters generally preferred to start the season from mid to late October in this region. Likewise, hunters that preferred to hunt in the southern Lower Peninsula (south zone) most frequently selected early October (1 October = $27 \pm 2\%$ and 8 October = $22 \pm 2\%$) for a 60-day season (Figure 19). For a 45-day season, these hunters more frequently selected a season start date in either early or mid-October. If the season was only 30 days long, south zone duck hunters most often selected a season starting about 22 October.

Separate daily harvest (bag) limits have been used for coots and moorhens (15 birds/day) and snipe and rails (8 birds/day). Yet very few of these birds have been harvested in Michigan each year (Moore et al. 1999 and 2001). It appeared that a common daily limit for all four species would provide adequate protection and not reduce hunting opportunity. Thus waterfowl hunters were asked whether they supported combining the daily limit (for example, 8 of these birds total/day). Most hunters ($52 \pm 2\%$) approved of a common daily limit; $10 \pm 1\%$ of the hunters strongly approved and $42 \pm 2\%$ approved (Figure 20). About $11 \pm 1\%$ of the hunters did not approve of a common limit, whereas $37 \pm 1\%$ were not sure about forming a common daily limit for these species.

In 1989 harvest regulations for mergansers were separated from other ducks to provide more harvest opportunity. However, the merganser harvest, as a proportion of total duck harvest, did not change ($\leq 2\%$ of total duck harvest; Martin et al. 1989, USFWS 2003), suggesting the increase in opportunity (and regulation complexity) has not resulted in an increase in hunting effort. Thus, duck hunters were asked whether they supported including mergansers as part of the daily duck limit to simplify daily limits (for example, six ducks and mergansers total per day). About $48 \pm 2\%$ of the duck hunters did not approved of combining the limit on mergansers and other ducks; $24 \pm 1\%$ strongly disapproved and $25 \pm 1\%$ disapproved (Figure 21). About $22 \pm 1\%$ of the duck hunters approved of a common daily limit and $26 \pm 1\%$ of the duck hunters were not sure about combining the daily limits for mergansers and ducks.

DISCUSSION AND MANAGEMENT IMPLICATIONS

The last opinion survey of Michigan waterfowl hunters occurred after the 1998-99 waterfowl hunting season (Soulliere and Frawley 2001). Between 1998 and 2002, the number of people buying a waterfowl hunting license declined by 8%, and the estimated number of active waterfowlers declined by 2%. The number of people hunting geese declined by 9%, however, the number of people hunting ducks increased by 4%. Since the last survey, goose hunters appear to have become more supportive of attempts to control urban/suburban goose numbers by destroying their nests. In 1999, most hunters did not support nest destruction (Soulliere and Frawley 2001), while in 2003, 44% approved and 36% disapproved of nest destruction in urban and residential settings. However, in this survey we briefly described the consequence of nest destruction on adult geese (i.e., migration to Hudson Bay and return in fall during open season), and this added information may have influenced responses.

In 1999, most goose hunters (56%) indicated they preferred a longer goose hunting season that begins earlier in the fall to a shorter season that would begin later in the fall. In 2003, however, most goose hunters (76%) indicated that having an opportunity to hunt ducks and geese at the same time was important, and most goose hunters (53%) were willing to shorten the goose season (e.g., from 30 to 20 days) and to start the season later in order to achieve more overlap between duck and goose hunting seasons.

In both 1998 and 2003, most duck hunters indicated hunting season splits and separate hunting zones generally had little effect on their satisfaction. Ironically, these special regulations designed to increase hunter satisfaction had no affect or reduced satisfaction for most waterfowl hunters. This has been observed among other waterfowl hunters in other locations in the United States (Enck et al. 1993, Ringelman 1997, Humburg et al. 1998).

The collective results of both the duck and goose season survey questions suggest a 60-day duck season should begin statewide about 1 October. This opening date would reduce regulation complexity and increase duck and goose season overlap in the south zone while accommodating most hunters. October is also the most active duck hunting month, and adding October hunting days should provide the greatest increase in opportunity. Regulation recommendations based on survey results become more complicated with 45- and 30-day duck seasons because of the clear interest in retaining or increasing the overlap between duck and goose seasons. Although a majority of hunters had no desire for using split duck seasons, the value of a split during a short (i.e., 30 days) duck season may increase substantially by achieving some duck and goose season overlap.

Use of motion-wing duck decoys has been a controversial topic among some hunters, particularly duck hunters as these devices are not effective in attracting geese. Many hunters believe the traditional hunting skills, including proper decoy placement, effective calling, and adequate concealment become much less important when using these decoys. Use of motion-wing decoys is low in northern Michigan, but nearly 40% of southern Michigan duck hunters used them at least occasionally during the 2002-03 duck season. There is little support for banning the decoys at this time, although many (28%) ducks hunters were unsure when asked whether the decoys should be banned from use. About 24% of the duck hunters favored banning motion-wing decoys, but over half of those indicated a ban should occur in Michigan only if other states do it simultaneously.

Developing waterfowl regulations may be one of the most challenging tasks for wildlife management agencies. Biological and ecological challenges stem from the migratory nature of the birds, the diversity and varied population trends of species being regulated, and the dynamic habitat and weather conditions that greatly influence both reproduction and hunter-induced mortality. Wildlife agency challenges are also social, as there are many stakeholders interested in the welfare and recreation associated with waterfowl.

Goals of the DNR Wildlife Division include ensuring viable wildlife populations and providing a variety of opportunities for hunting and other types of wildlife-related recreation. However, many stakeholders desire wildlife populations beyond viable levels, and duck and goose abundance surely influences waterfowl hunter satisfaction. Hunting regulations also may influence satisfaction, plus they are the primary tool available for managers to adjust mortality and future population size on heavily

harvested species (Canada geese and mallards). This may be particularly true in states like Michigan which has relatively high hunter densities and a waterfowl harvest heavily dependent on locally-produced ducks and geese (Zuwerink 2001, Soulliere and Luukkonen 2003). Thus, hunting regulations may influence hunter satisfaction in the short-term (i.e., opportunity and complexity) and perhaps in the long-term for some species (i.e., population size). Although many factors, including breeding habitat, weather, and harvest regulations can affect migratory bird abundance and hunter satisfaction during a particular year, wildlife professionals have the greatest control over regulations. Therefore, regulations should assure hunting opportunity that results in high satisfaction while protecting the waterfowl resource.

Waterfowl hunter opinions on regulations and management issues likely reflect personal values and tradition. Using periodic hunter opinion surveys, coupled with input from groups like the CWAC, waterfowl managers can better understand social issues important to the waterfowl regulations setting process. Like many other states, Michigan's waterfowl hunting regulations have become increasingly accommodating to the ardent duck hunter who readily accepts and even requests intricate rules to try to improve satisfaction. However, there may be a danger in following recommendations of the most vocal groups when subsequent regulation complexity exceeds the comfort level of more casual hunters. For example, concern over inadvertent illegal activity due to complex rules could cause hunters to leave the waterfowl hunting fraternity, and there is evidence that this has already occurred (Enck et al. 1993).

Wildlife professionals need to explicitly state the purpose of various hunting regulations and evaluate the effectiveness of these regulations. Those rules which are ineffective at achieving their intended purpose should be eliminated. Developing waterfowl regulations will continue to be a challenging process. This task requires balancing desires of the hunter majority with requests of the most ardent waterfowlers, and all within the biological and ecological constraints of the waterfowl resource we hope will provide sustained recreational opportunity.

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Table 1. Migratory bird hunting seasons in Michigan during the overall 2002-03 waterfowl season.

Species, season, and area (zones)	Season dates (days)	Daily harvest limit
Ducks ^a , geese ^b , coots, moorhens, and mergansers		
Youth waterfowl hunting season		
Statewide	Sept. 21 - 22 (2)	Same as regular seasons
Regular hunting seasons		
Upper Peninsula	Sept. 28 – Nov. 24 & Nov. 30 – Dec. 1 (60)	6 ducks ^a , 15 coots or moorhens, 5 mergansers, 10 geese ^b
Lower Peninsula	Oct. 12 – Dec. 8 & Jan. 4 – 5 (60)	
Canada geese		
Early seasons		
Upper Peninsula	Sept. 1 – 10 (10)	5
Lower Peninsula	Sept. 1 – 15 (15)	5
Regular season ^c		
Southern James Bay Population (SJBP) Unit	Sept. 16 – Oct. 6 and Dec. 14 – 22 (30)	2
Mississippi Valley Population (MVP) Unit	Sept. 16 – Oct. 6 (21)	2
Late season		
Southern Lower Peninsula	Jan. 4 – Feb 2, 2003 (30)	5
Rails and snipe		
Statewide	Sept. 15 – Nov. 14 (61)	8

^aExcludes canvasback (*Aythya valisineria*) and pintail (*Anas acuta*) which had a shorter season and a daily limit of one. Some other duck species also had daily limits <6. See Soulliere and Luukkonen (2003) for more details on Michigan waterfowl regulations during the 2002-03 season.

^bIncludes Snow, Blue and Ross geese, but excludes Canada geese (*Branta canadensis*).

^cFour relatively small Goose Management Units (Allegan County, Muskegon, Saginaw, and Tuscola/Huron) had 25 to 50-day seasons that differed from the remainder of the state.

Table 2. Proportion of license buyers and number of people hunting ducks and geese in Michigan, 2002-03.

Species hunted	License buyers that hunted (%) ^a	95% CL ^b	Number of hunters	95% CL ^b
Ducks	82%	1%	52,773	685
Geese	69%	1%	44,873	816
Ducks or geese	89%	1%	57,693	547
Ducks, but not geese	20%	1%	12,821	707
Geese, but not ducks	8%	1%	4,921	470

^aWaterfowl hunting licenses were purchased by 64,582 people in 2002.

^b95% confidence limit for the estimated license buyers hunting.

Table 3. Number of people hunting ducks and geese in Michigan's three waterfowl hunting zones, 2002-03, summarized by zone hunted and where hunter resided.

Species hunted and hunter's residence	Hunting zone					
	Upper Peninsula		Northern Lower Peninsula		Southern Lower Peninsula	
	Total	95% CL	Total	95% CL	Total	95% CL
Ducks						
Upper Peninsula	3,991	427	929	211	1,353	254
Northern Lower Peninsula	2,296	328	6,397	530	2,392	335
Southern Lower Peninsula	6,807	544	17,140	783	34,088	885
Statewide ^a	11,153	670	22,962	849	35,209	883
Geese						
Upper Peninsula	3,280	389	437	145	998	219
Northern Lower Peninsula	1,367	255	4,593	456	1,627	278
Southern Lower Peninsula	4,032	429	11,632	681	29,879	884
Statewide ^a	7,613	572	15,978	765	30,644	885

^aColumn totals do not equal statewide total because hunters can hunt in more than one hunting zone.

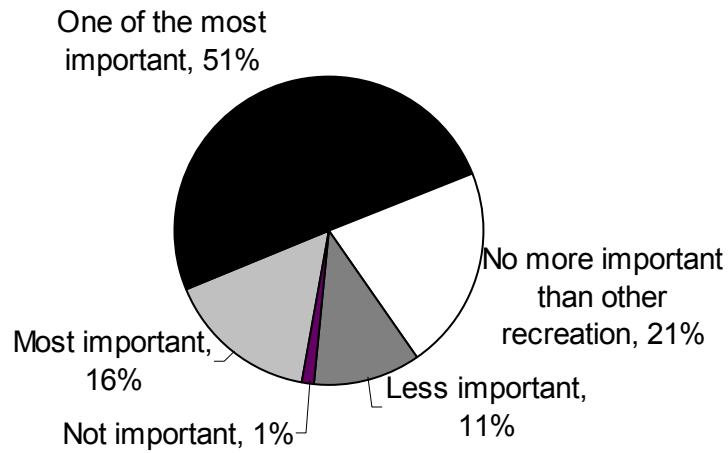


Figure 1. Importance of waterfowl hunting as a recreational activity among waterfowl license buyers (% of license buyers) in Michigan, 2002-03.

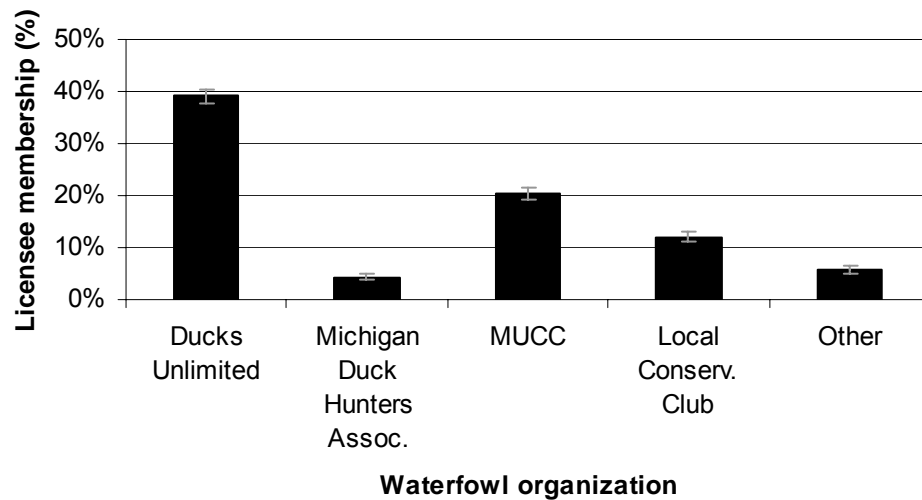


Figure 2. Proportion of Michigan waterfowl hunters that were members of waterfowl hunting or conservation organizations during the previous three years when surveyed in 2003. Brackets at the top of vertical bars represent 95% confidence intervals.

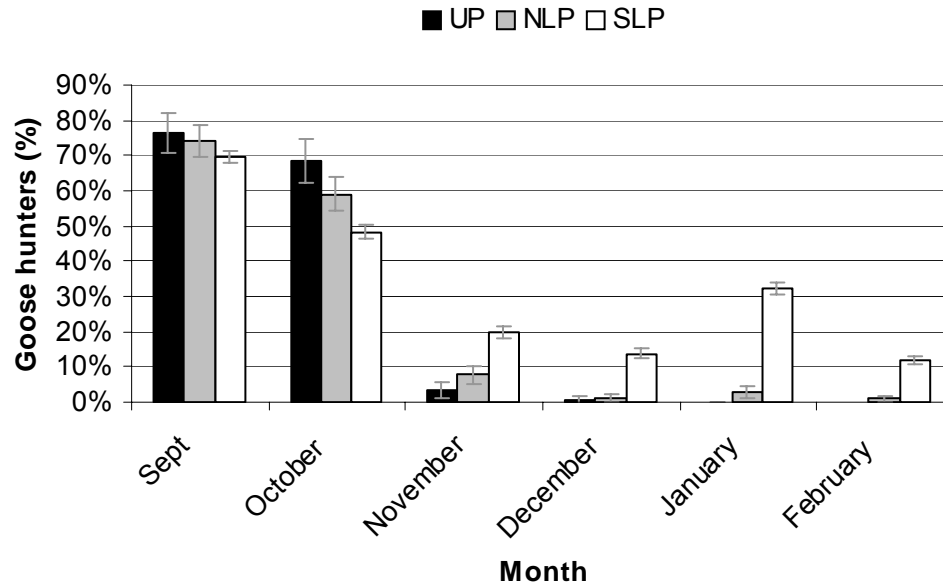


Figure 3. Proportion of goose hunters hunting in Michigan during the 2002-03 season, summarized by month hunted and region (hunting zone) of residence. Hunting zones included the UP – Upper Peninsula, NLP – northern Lower Peninsula, and SLP – southern Lower Peninsula.

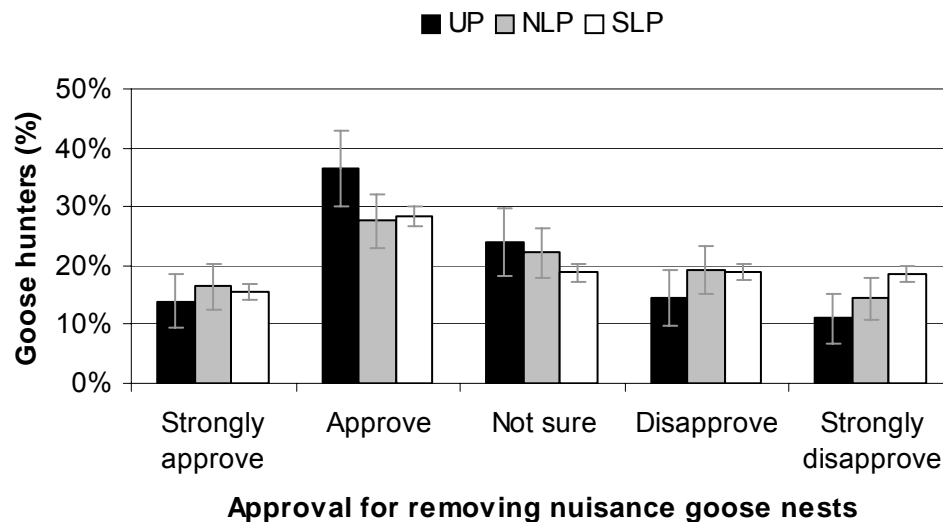


Figure 4. Proportion of Michigan goose hunters by region (hunting zone) of residence that supported destroying goose nests in areas with human-goose conflict, 2002-03. Hunting zones included the UP – Upper Peninsula, NLP – northern Lower Peninsula, and SLP – southern Lower Peninsula.

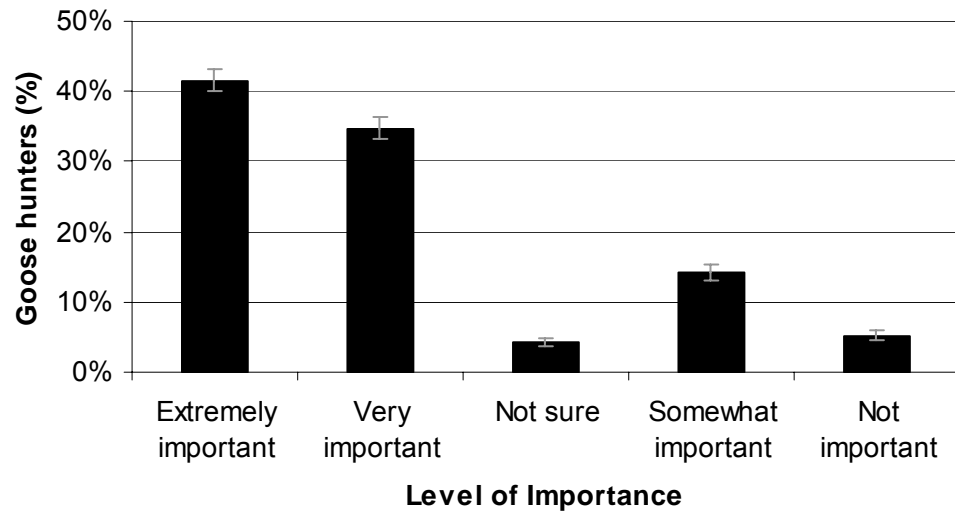


Figure 5. Importance to Michigan goose hunters of having an opportunity to hunt ducks and geese at the same time, 2002-03.

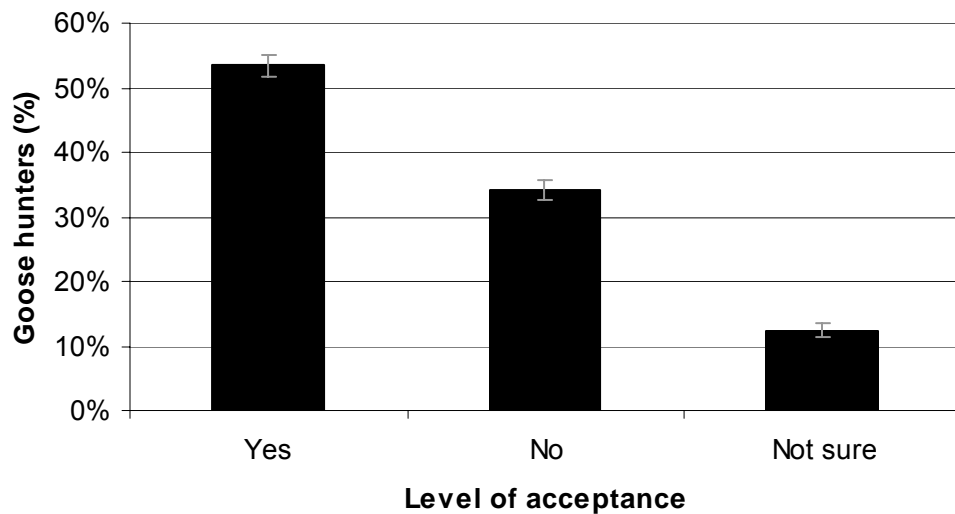


Figure 6. Proportion of Michigan goose hunters that would accept a shorter regular goose season that starts later in order to have more overlap between goose and duck seasons, 2002-03.

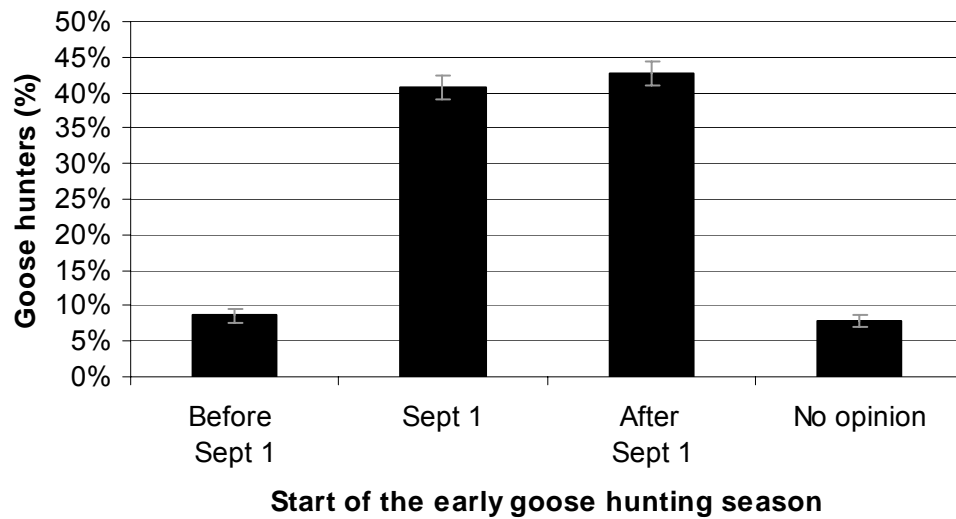


Figure 7. Preferred start of the early goose hunting season (% of goose hunters) in Michigan, 2002-03.

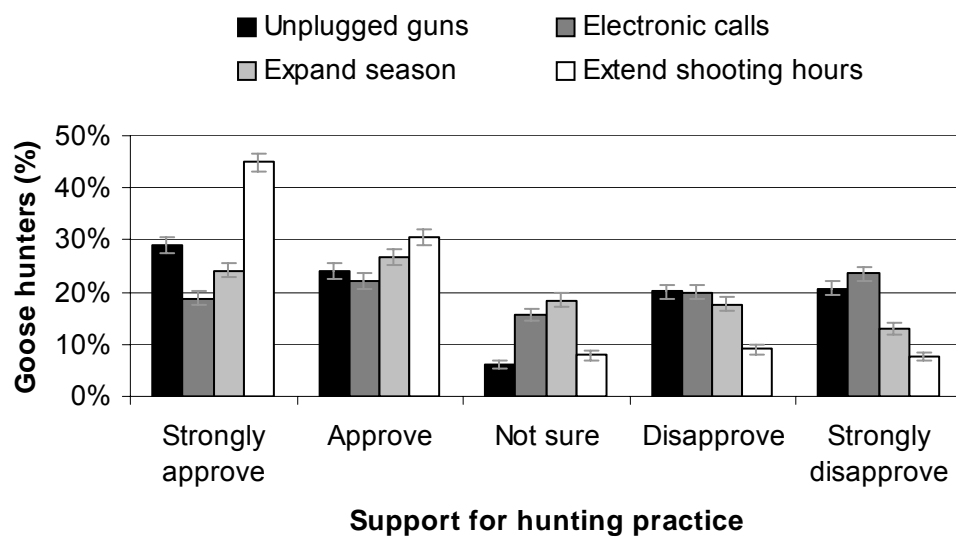


Figure 8. Proportion of goose hunters that supported additional hunting practices to increase harvest of resident geese in Michigan, 2002-03.

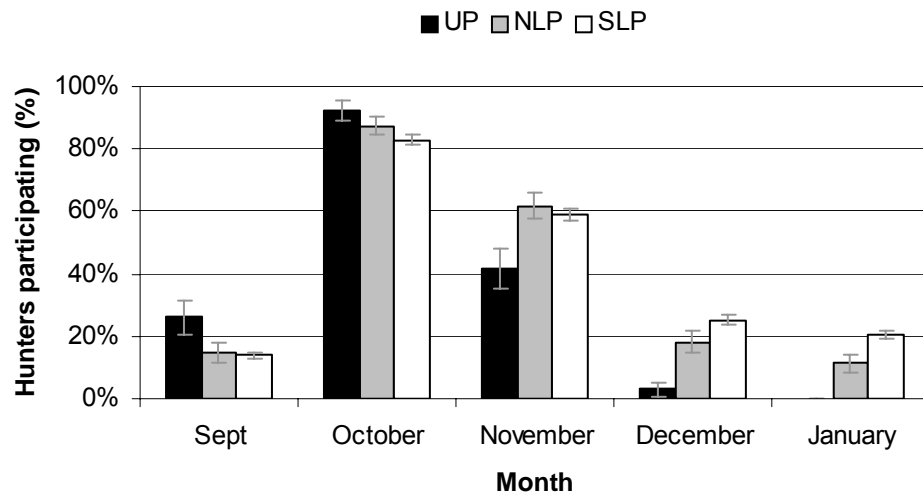


Figure 9. Proportion of active Michigan duck hunters that hunted ducks during the season, summarized by month and hunting zone of residence, 2002-03. Hunting zones included the UP – Upper Peninsula, NLP – northern Lower Peninsula, and SLP – southern Lower Peninsula.

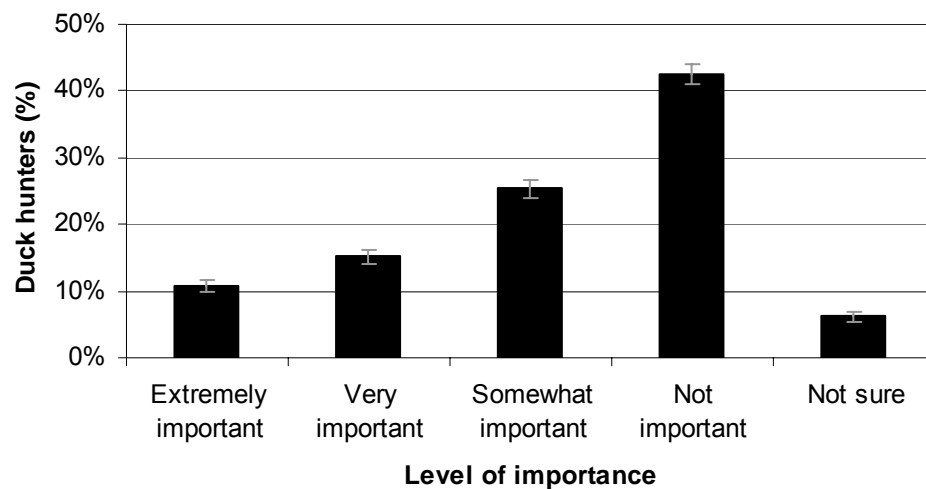


Figure 10. Importance to Michigan duck hunters of having an opportunity to hunt opening day of the hunting season in multiple hunting zones, 2002-03.

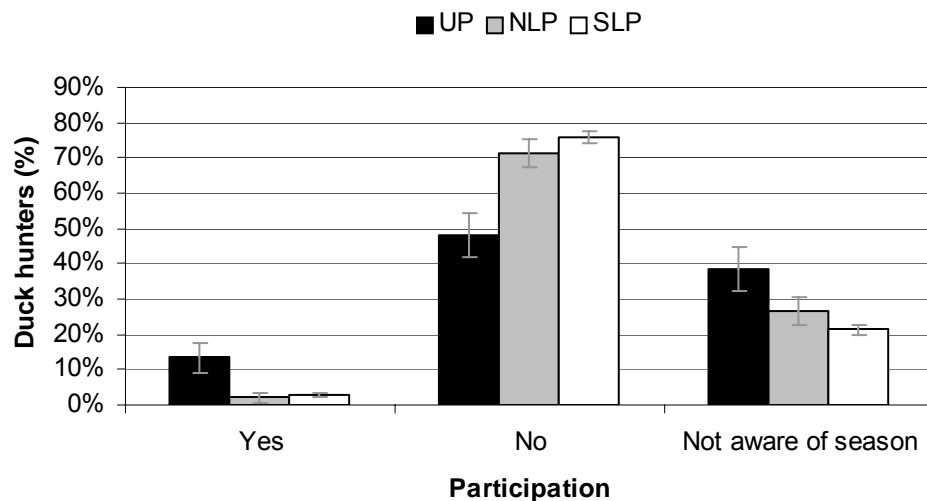


Figure 11. Proportion of Michigan duck hunters that hunted during the late, 2-day duck hunting season split in the Upper Peninsula, summarized by hunting zone of residence, 2002-03. Hunting zones included the UP – Upper Peninsula, NLP – northern Lower Peninsula, and SLP – southern Lower

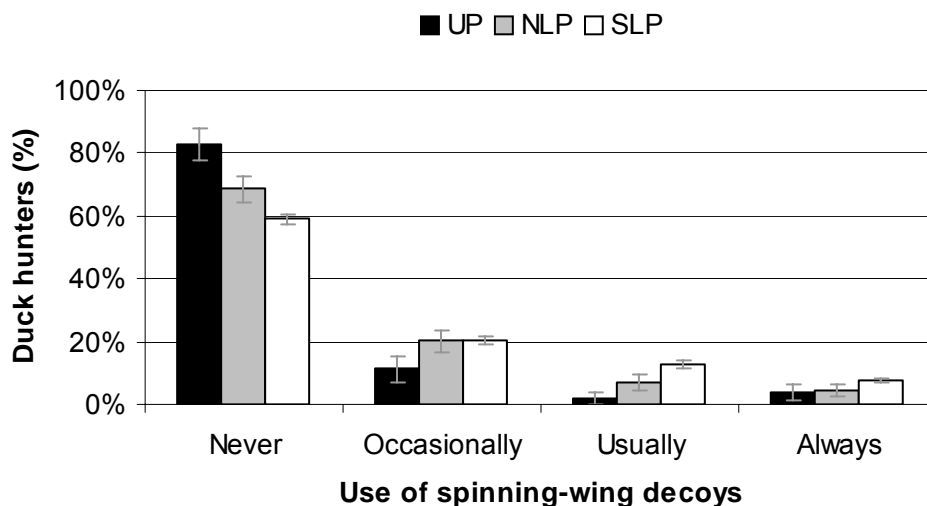


Figure 12. Proportion of Michigan duck hunters that used a motorized spinning-wing decoy, summarized by hunting zone of residence, 2002-03. Hunting zones included the UP – Upper Peninsula, NLP – northern Lower Peninsula, and SLP – southern Lower Peninsula.

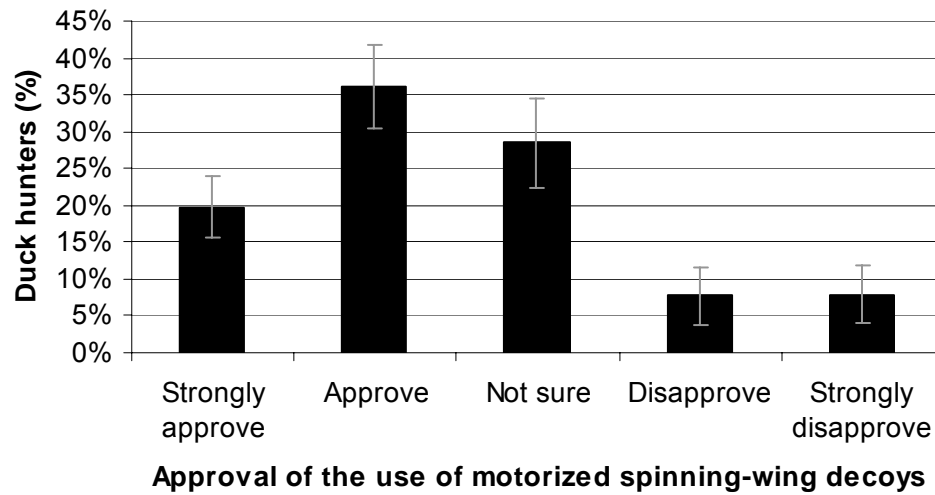


Figure 13. Proportion of Michigan duck hunters that approved of the use of motorized spinning-wing decoys, 2002-03.

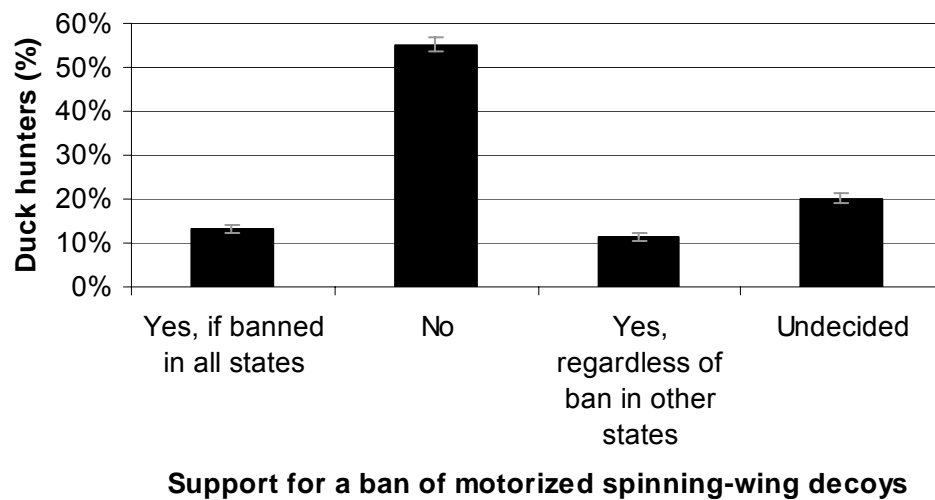


Figure 14. Proportion of Michigan duck hunters that supported a ban on the use of motorized spinning-wing decoys, 2002-03.

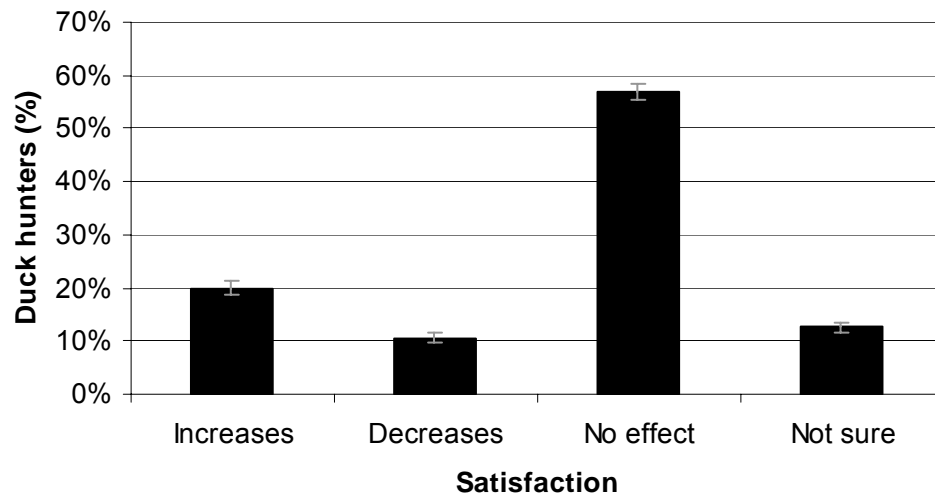


Figure 15. Proportion of Michigan duck hunters indicating hunting zones (state geographic regions with different season dates) affected their satisfaction, 2002-03.

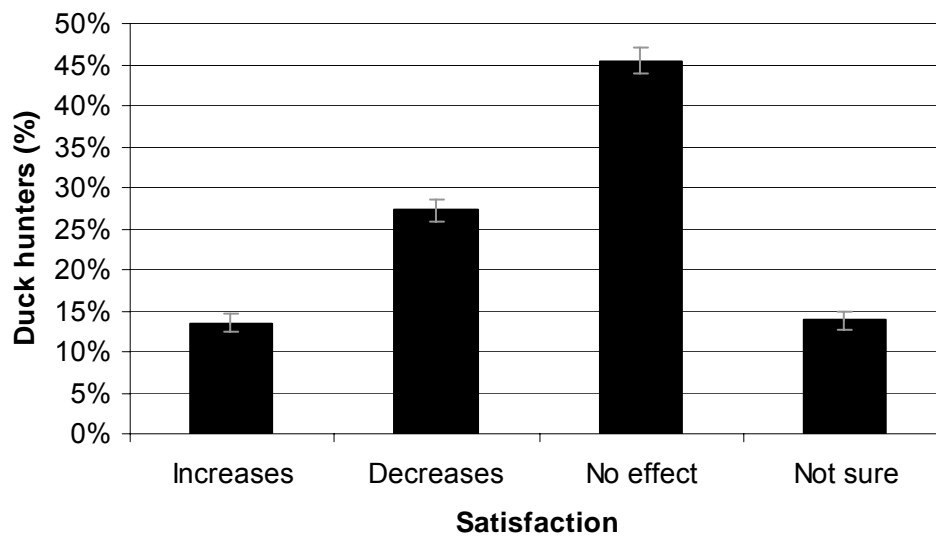


Figure 16. Proportion of Michigan duck hunters that indicated hunting season splits (closed periods within seasons to achieve a longer season framework) affected their satisfaction, 2002-03.

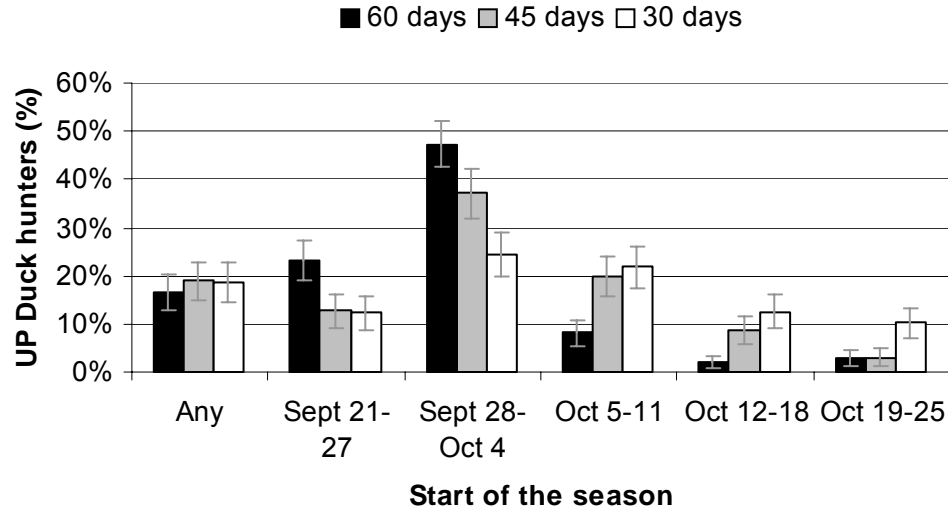


Figure 17. Preferred starting period for the duck hunting season in the Upper Peninsula of Michigan, summarized by season length, 2002-03.

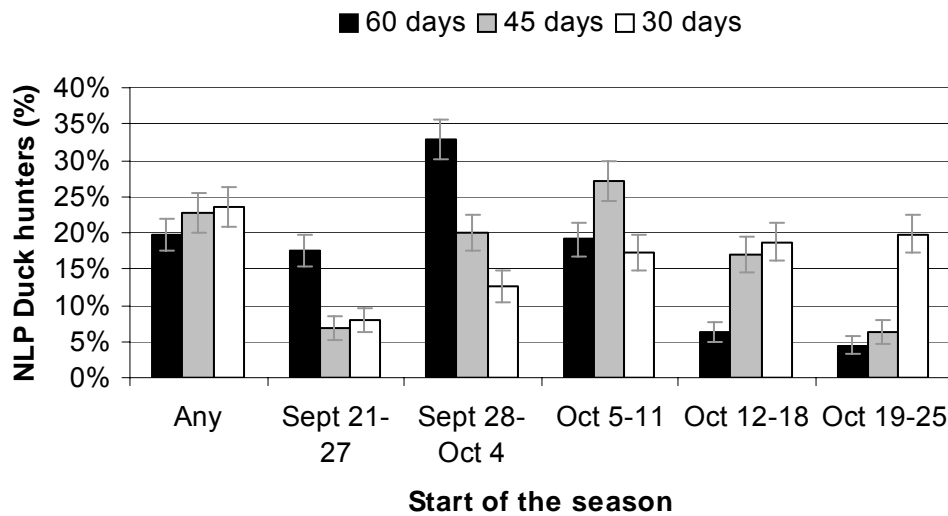


Figure 18. Preferred starting period for the duck hunting season in the northern Lower Peninsula of Michigan, summarized by season length, 2002-03.

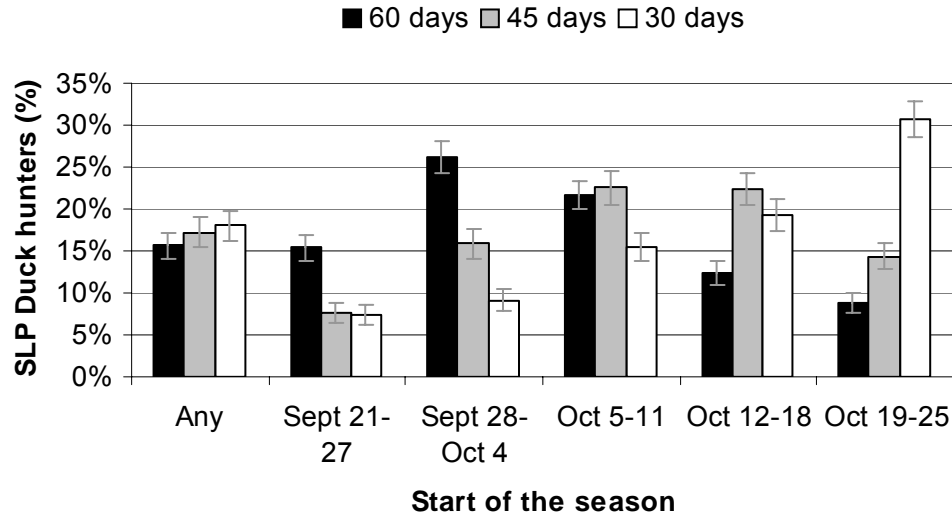


Figure 19. Preferred starting period for the duck hunting season in the southern Lower Peninsula of Michigan, summarized by season length, 2002-03.

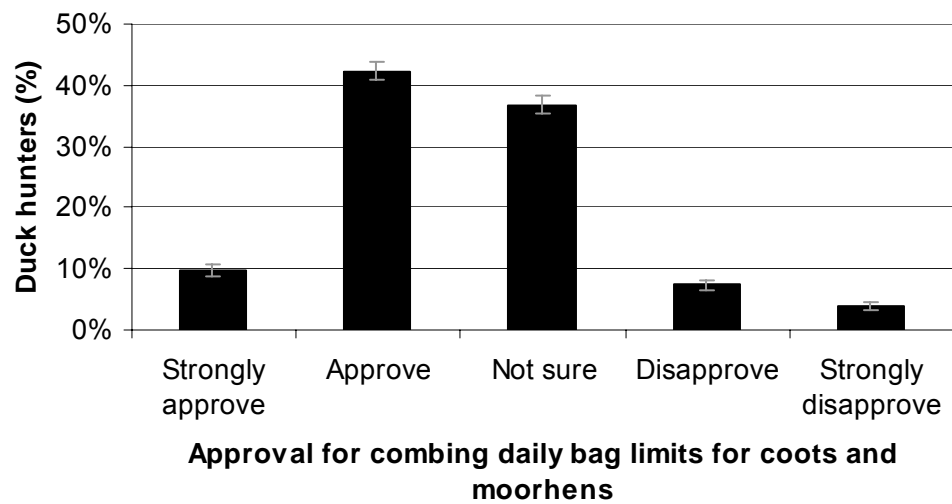


Figure 20. Proportion of Michigan hunters that supported combining the daily limit for coots and moorhens, 2002-03.

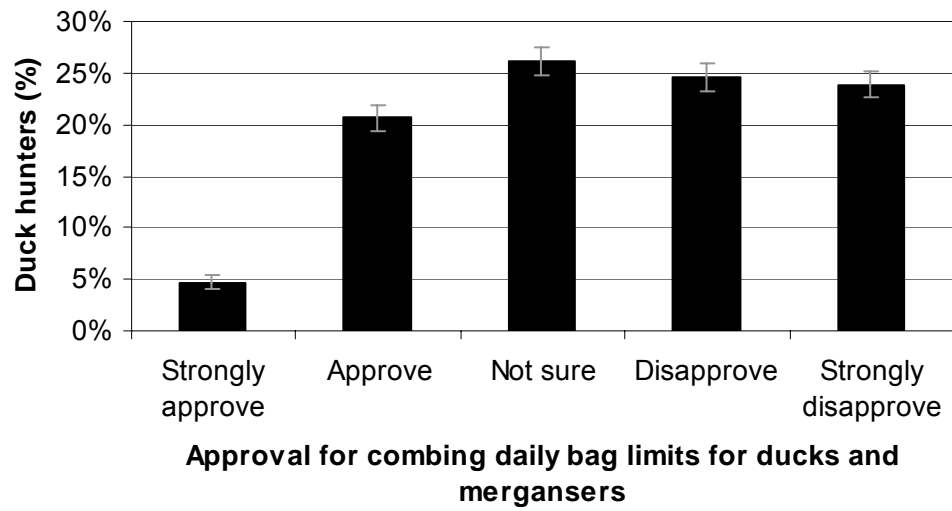


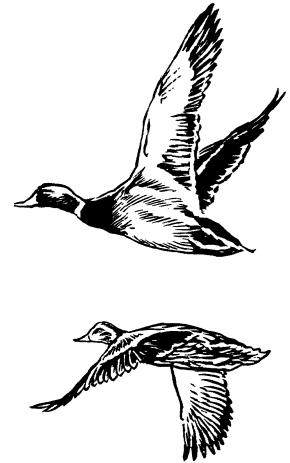
Figure 21. Proportion of Michigan hunters that supported combining the daily limit for ducks and mergansers, 2002-03.

Appendix A. The questionnaire sent to a sample of waterfowl license buyers in this study.



2003 WATERFOWL HUNTER OPINION SURVEY

This information is requested under authority of Part 435, 1994 PA 451, M.C.L. 324.43539.



It is important that you complete and return this questionnaire even if you did not hunt or harvest waterfowl during the most recent waterfowl hunting seasons.

General Waterfowl Hunting Questions

1. As a recreational activity, how important is waterfowl hunting for you compared to your other recreational activities? (Check only one choice.)

- | | |
|--|--|
| <input type="checkbox"/> 1 My most important recreational activity. | <input type="checkbox"/> 2 One of my more important recreational activities. |
| <input type="checkbox"/> 3 No more important than any other recreational activity. | <input type="checkbox"/> 4 Less important than most of my other recreational activities. |
| <input type="checkbox"/> 5 Not at all important to me as a recreational activity. | |

2. Indicate which waterfowl organizations you were a member of in the last 3 years. (Check all that apply.)

- | | | |
|--|--|--|
| <input type="checkbox"/> 1 Ducks Unlimited | <input type="checkbox"/> 2 Michigan Duck Hunters Association | <input type="checkbox"/> 3 Michigan United Conservation Clubs (MUCC) |
| <input type="checkbox"/> 4 Local Conservation Club | <input type="checkbox"/> 5 Other (please list): _____ | |

Questions Related to Duck Hunting

3. How often did you hunt ducks in Michigan during the 2002-03 hunting season? Please provide an answer for each hunting zone.

- | | | | | |
|---|----------------------------------|-------------------------------------|-------------------------------------|---|
| North Zone (Upper Peninsula): | <input type="checkbox"/> 1 Never | <input type="checkbox"/> 2 1-3 days | <input type="checkbox"/> 3 4-9 days | <input type="checkbox"/> 4 ≥ 10 days |
| Middle Zone (Northern Lower Peninsula): | <input type="checkbox"/> 1 Never | <input type="checkbox"/> 2 1-3 days | <input type="checkbox"/> 3 4-9 days | <input type="checkbox"/> 4 ≥ 10 days |
| South Zone (Southern Lower Peninsula): | <input type="checkbox"/> 1 Never | <input type="checkbox"/> 2 1-3 days | <input type="checkbox"/> 3 4-9 days | <input type="checkbox"/> 4 ≥ 10 days |

4. If you hunted ducks in Michigan during the 2002-03 season, indicate which months you hunted ducks. (Check all months that apply.) If you did not hunt ducks, skip to Question No. 6.
- ¹ ☐ September ² ☐ October ³ ☐ November ⁴ ☐ December ⁵ ☐ January
5. In 2002 which zones did you hunt ducks during opening weekend? (Check all that apply.)
- ¹ ☐ Never hunted on an opening weekend in any zone ² ☐ North Zone (Upper Peninsula)
- ³ ☐ Middle Zone (Northern Lower Peninsula) ⁴ ☐ South Zone (Southern Lower Peninsula)
6. How important to your duck hunting enjoyment is the opportunity to hunt opening day in more than one hunting zone in Michigan?
- ¹ ☐ Extremely Important ² ☐ Very Important ³ ☐ Somewhat Important ⁴ ☐ Not Important ⁵ ☐ Not sure
7. Did you hunt during the 2-day late November split duck season in the Upper Peninsula in 2002?
- ¹ ☐ Yes ² ☐ No ³ ☐ I was not aware of this season.
8. What is your preferred type of duck hunting? (Check only one choice.)
- ¹ ☐ Large open water lakes or large marshes. ² ☐ Small marshes or beaver ponds.
- ³ ☐ Large rivers. ⁴ ☐ No preference.
9. How many youth did you take waterfowl hunting during Michigan's Youth Waterfowl Hunting weekend (September 21-22, 2002)?
- ⁰ ☐ None, skip to Question No. 11 Record the number of youth : _____
10. How many of the youth that you took hunting during Michigan's Youth Waterfowl Hunting weekend (September 21-22, 2002) were not related to you and would not otherwise have been likely to hunt waterfowl?
- ⁰ ☐ None Record the number of youth : _____
11. How often did you hunt over a motorized spinning-wing decoy (for example, Robo-Duck) when hunting ducks in Michigan during the 2002-03 hunting season?
- ¹ ☐ Never ² ☐ Occasionally ³ ☐ Usually ⁴ ☐ Always
12. How much do you approve or disapprove of hunting ducks in Michigan with the aid of motorized spinning-wing decoys (for example, Robo-Duck)?
- ¹ ☐ Strongly Approve ² ☐ Approve ³ ☐ Not Sure ⁴ ☐ Disapprove ⁵ ☐ Strongly Disapprove
13. Would you support a ban on motorized spinning-wing decoys in Michigan? (Check only one choice.)
- ¹ ☐ Yes, but only if banned in all states ² ☐ No
- ³ ☐ Yes, regardless if banned in other states ⁴ ☐ Undecided
14. How does having different duck hunting zones (regions with different opening and closing dates) affect your duck hunting satisfaction?
- ¹ ☐ Increases ² ☐ Decreases ³ ☐ No effect ⁴ ☐ Not sure

15. How do duck hunting season splits (open and closed periods within the duck hunting season) affect your duck hunting satisfaction?

¹ ☐ Increases ² ☐ Decreases ³ ☐ No effect ⁴ ☐ Not sure

16. What is your preferred zone to hunt ducks in Michigan? (Check only one choice.)

¹ ☐ North Zone (Upper Peninsula) ² ☐ Middle Zone (Northern Lower Peninsula) ³ ☐ South Zone (Southern Lower Peninsula)

17. The length of the duck season is adjusted depending on the projected number of ducks available for harvest. We also have the option of changing the opening date. For the zone you prefer to hunt (as indicated in previous question), please indicate the opening period you would choose for each length of duck season by placing a check in the box. For example, if you prefer the season to begin on October 1 for a 60-day season, check the Sep 28-Oct 4 box in the 60 Days row. Also provide a preference for the 45- and 30-day rows.

Which opening period would you prefer for that season length? (Choose one date for each season length by putting an "X" in that box.)						
If the Season Length is...	I am undecided OR I have no preference	Sept 21-27	Sept 28- Oct 4	Oct 5-11	Oct 12-18	Oct 19-25
...60 Days-->						
...45 Days-->						
...30 Days-->						

18. Separate daily limits are used for coots and moorhens (15 birds/day) and snipe and rails (8 birds/day). Very few of these birds are harvested in Michigan each year. Using the same daily limit for all four species will provide adequate protection and not reduce hunting opportunity. How strongly would you support or oppose combining the daily limit (for example, 8 of these birds total/day)?

¹ ☐ Strongly Approve ² ☐ Approve ³ ☐ Not sure ⁴ ☐ Disapprove ⁵ ☐ Strongly Disapprove

19. A separate daily limit for mergansers has existed since 1989 in order to provide more opportunity to harvest them. However, the merganser harvest has remained the same (2% of the total duck harvest), and the separate merganser limit may not be useful to hunters. How strongly would you support or oppose including mergansers as part of the daily duck limit again as we did before 1989 (for example, 6 ducks and mergansers total per day)?

¹ ☐ Strongly Approve ² ☐ Approve ³ ☐ Not sure ⁴ ☐ Disapprove ⁵ ☐ Strongly Disapprove

Questions Related to Goose Hunting

20. How often did you hunt geese in Michigan during the 2002-03 hunting season? Please provide an answer for each hunting zone.

North Zone (Upper Peninsula): ¹ ☐ Never ² ☐ 1-3 days ³ ☐ 4-9 days ⁴ ☐ ≥10 days
 Middle Zone (Northern Lower Peninsula): ¹ ☐ Never ² ☐ 1-3 days ³ ☐ 4-9 days ⁴ ☐ ≥10 days
 South Zone (Southern Lower Peninsula): ¹ ☐ Never ² ☐ 1-3 days ³ ☐ 4-9 days ⁴ ☐ ≥10 days

21. Indicate which months you hunted geese in Michigan during the 2002-03 hunting season.
(Check all months that apply.)
 1 ☐ September 2 ☐ October 3 ☐ November 4 ☐ December 5 ☐ January 6 ☐ February
22. In some residential areas where hunting is not an option for controlling nuisance urban geese, goose nests have been removed. These geese do not have goslings and often fly to Hudson Bay for the summer, and return to Michigan in early fall during the hunting season. How strongly do you agree or disagree with removing goose nests in urban areas with nuisance levels of geese?
 1 ☐ Strongly Approve 2 ☐ Approve 3 ☐ Not Sure 4 ☐ Disapprove 5 ☐ Strongly Disapprove
23. How important is it for you to have the opportunity to hunt ducks and geese at the same time?
 1 ☐ Extremely Important 2 ☐ Very Important 3 ☐ Not Sure 4 ☐ Somewhat Important 5 ☐ Not Important
24. Would you accept a shortened Regular Goose Season (for example, from 30 to 20 days) starting later in the fall in order to achieve more days of overlap between goose and duck seasons?
 1 ☐ Yes 2 ☐ No 3 ☐ Not Sure
25. In 2002, the early goose hunting season began in Michigan on September 1. Assuming that this early season continues to be 10 days in the Upper Peninsula and 15 days in the Lower Peninsula, when would you prefer that the early season begin?
 1 ☐ Before Sept. 1 2 ☐ Sept. 1 (current start) 3 ☐ After Sept. 1 4 ☐ No Opinion
26. It has been suggested that the RESIDENT Canada goose population in Michigan (i.e., geese that nest in Michigan) could be reduced if hunters could use practices which are currently illegal for hunting geese; for example, using unplugged guns and electronic calls. How much do you approve or disapprove of the following methods for controlling RESIDENT Canada geese in Michigan?
- | | Strongly Approve | Approve | Not Sure | Disapprove | Strongly Disapprove |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| A. Hunt with unplugged guns (currently limited to 3 shells). | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> |
| B. Use electronic calls (currently banned). | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> |
| C. Add late August as part of the early goose season (currently limited to early September). | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> |
| D. Hunt until 30 minutes after sunset (currently ends at sunset). | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> |

*Please return questionnaire in the enclosed postage-paid envelope.
Thank you for your help.*